satisfied with one's work, however, is one thing; how to make it better is quite another. In chemistry we have perhaps all the means commonly employed. In physiology we can get objective illustrations brought into the class-room, and can use the microscope and diagrams. In mechanics our workshops supply practical work, but for the class-room we have only the most homely practical examples, and I know of no apparatus that is not cumbrous, needlessly costly, or ineffectual. Johnstone's admirable illustrations and the black-board are our chief agents. I would travel far to get a practical knowledge of means and methods by which we could improve our own, in teaching this subject.

I believe that such knowledge as I have indicated may be profitably given even to very young boys. They learn thereby to distinguish the precise features and qualities of natural objects, and the conditions of ordinary phenomena; and such teaching undoubtedly exercises in the best way the observing powers which develop much earlier than the reflective faculty. I am inclined to say that teaching elementary science to boys from ten to thirteen is a greater success than teaching grammar, *i.e.*, that the principles involved are more easily seen, excite more interest, and become therefore a better mental discipline. We rarely have boys come to us with any knowledge of science, and when they have, it has generally been acquired from lectures, and is worthless as a means of education. We do not lecture, but do real hard class-work, and take periodical examinations on this work, giving it equal value in these and our grade examinations with language and mathematics. We have no reason to believe that this work interferes with or deteriorates the work in language and mathematics, in which subjects we find our boys quite equal, and, except in very rare cases, I may say, superior to incomers of like power, and who have had no science teaching.

The great number of men eminent for their vast scientific attainments, who have achieved this eminence in spite of our non-scientific, I may almost say anti-scientific system of education, clearly indicates that many of us have an inherent scientific power or genius surpassing our power in any other direction. I plead for such that they have the same chance of being floated on their scientific voyage as the linguist and the mathematician have on theirs: and I have seen no satisfactory plea why they should not. Value for value I claim for the science man a higher status in our present social life than is due to either linguist or mathematician.

My experience as a schoolmaster has revealed to me many cases where the talent for language or mathematics has been so low that the education effected by these has been of the meanest kind; or where the incessant failure has produced a stolid ignorance, a kind of mental paralysis, most disheartening to all concerned. Such cases have come into my hands, and I have seen intelligence rekindled, and mental power aroused by simple science teaching, and the power even for other subjects enhanced thereby. I plead for these feeble ones. Is it not a crime to them to keep the mind fixed on what to them is abstruse and unintelligible, and to shut against them the inspiring book of nature, which may contain the only intellectual sunshine of which their being is susceptible?

Allesley Park College, Coventry T. WYLES

I shall be obliged if you will permit me to remind Mr. Wilson of certain passages in his article contained in "Essays on a Liberal Education."

In his letter (NATURE, vol. xiii. p. 373) Mr. Wilson writes:—

"I maintain, after trial, that it is unwise, and unscientific from an educational point of view, to attempt to teach science at schools to boys till they have attained a certain standard of knowledge in arithmetic, and a certain power of reasoning and language as shown by their attainments in geometry and Latin. Let science be held before them as a thing to be enjoyed when they are older and more advanced. It is spoiled for them, and they are spoiled for it by its being taught them too soon. The dicta of men like Faraday and Sir John Lubbock and Roscoe are misleading opinion on this point, and I wish to record my protest against them."

But in "Essays," &c., Mr. Wilson wrote:—"Moreover, the kind of knowledge that science offers is not only wide and interesting and elevating, but it is also exact; and this exactness is a very great merit. It is a knowledge of things and not of words. In the education of the upper classes there is too little of positive and exact knowledge. . . . And natural science supplies this want of clearness and certitude better than arithmetic or geometry." And again:—

"But here is even a stronger ground for advocating the introduction of science as an element in all liberal education, and that is its peculiar merit as a means of educating the mind. . . . All that can be said on this point has been said over and over again, and I can contribute nothing except my daily experience that what is said is true. . . . Science is the best teacher of accurate, acute, and exhaustive observation of what is. . . . And of all processes of reasoning it stands alone as the exhaustive illustration."

Giggleswick, April 4 W. MARSHALL WATTS

NOTES

THE date now finally fixed for the opening of the Scientific Loan Exhibition is the 1st of May. This delay is entirely owing to the unexpected richness and variety of the collection. Germany alone sends upwards of 2,500 objects, many of them of the greatest value. Although France has sent some very fine objects for exhibition, she will, on the whole, be rather poorly represented. The Italians are sending all the riches of their storehouse at Florence, including Galileo's telescopes.

ON the 31st ult. a meeting, at which several well-known English biologists were present, took place at the house of Dr. Burdon-Sanderson, at which the advisability of establishing a society or association for the purpose of promoting the progress of physiological research in England, was considered and discussed. Eventually the matter was referred to a committee, who will report to a future meeting; after which some conversation followed as to the question of legislation, the general feeling of those present being that no opposition ought to be made on the part of scientific men to any measure framed in accordance with the recommendations of the Royal Commission.

A MOVEMENT has been organised for erecting a monument to the late Jean Baptiste Donati. The idea originated with the professors of the Physical and Natural History Museum of Florence, and it is proposed to erect the monument in the new observatory of Arcetri, which was in a manner Donati's work. We are sure there are many admirers of Donati in this country who will gladly subscribe to such a monument. The foreign Legations and Consuls of Italy are authorised to receive and transmit subscriptions to the Committee for Donati's monument, to whom they may be sent direct, at the Natural History Museum, Florence.

IT is proposed to raise by subscription a fund for the purpose of establishing a Memorial in honour of the late Daniel Hanbury; the amount of each contribution not to exceed one guinea. The form suggested for the memorial is that of a medal to be called the "Hanbury" medal, to be awarded for original research in the Chemistry and Natural History of Drugs by investigators in any part of the world. Dr. Hooker, Sir George Burrows, Sir James Paget, Sir Robert Christison, Dr. Allman, Dr. Warren de la Rue, Prof. Abel, and Mr. T. Hyde

Hills, have already expressed their cordial approval of the movement, and consented to be placed on the Committee now in course of formation; Prof. Attfield and Messrs. Carteighe and Bremridge are acting provisionally as secretaries.

LIEUT. CAMERON arrived at Liverpool in the *Congo* on Sunday, and as might be expected, was received with the greatest enthusiasm. Besides his relatives there were present the Liverpool municipal authorities, and Mr. Tinne, as representative of the Royal Geographical Society. Lieut. Cameron was attacked by scurvy on reaching the west coast of Africa, but is now to all appearance quite recovered, and looks strong and well. On Monday he was quite the lion of Liverpool, where he was fêted and toasted and justly treated as a hero who has accomplished a great and useful work. He gives a glowing account of the interior of Africa, and hopes that his journeyings will lead to its commercial development. There is no doubt that at the meeting of the Geographical Society next Tuesday, in St. James's Hall, he will meet with a warm reception. On Tuesday he met with a hearty welcome on his return to Shoreham, near Sevenoaks, of which place his father is vicar.

A COMMISSION of the Geographical Society of Paris has awarded the Society's Great Medal to Dr. Nachtigal, the German North African explorer. It is stated that owing to the arrival of Lieut. Cameron, steps will be taken by the Society to award extraordinary honours to the British explorer who has done so much for African discovery. The anniversary meeting of the Geographical Society is to take place on the 9th of April.

A DISCOVERY of great importance to prehistoric archæology has just been made in France. On March 2, while some workmen were excavating in a quarry of Jurassic limestone, near the little commune of Cravanche, about three kilometres N.W. of Belfort, at the base of a hillock, they came upon a small opening which was found to lead into a cave of large dimensions. On entering the cavern its floor was found to be covered with human bones, so disposed as to lead to the belief that the cave formed a prehistoric place of sepulture. Magnificent stalagmitic columns rise from the floor, but without corresponding stalactites. It would seem as if these columns were partly natural and partly artificial, as they appear to be disposed in a sort of systematic method, after the form of dolmens. It is in these cavities that the multitude of bones have been found. The skulls are raised slightly above the level of the rest of the bodies, which appear to be in a somewhat bent position. Several polished flint weapons have also been found, three beautiful ornamented vases in the form of urns, polished stone bracelets, and a mat of plaited rushes. The cave itself is calculated to be about 36 metres long and about 12 in breadth and height; and numerous galleries, or side-caverns, run off the main one. Immediately on the discovery of the cavern, the authorities of Belfort took measures to guard it and the treasures it contains in the interests of science, and M. Félix Voulot, who has given great attention to the subject of prehistoric archæology, has been charged with carrying on the researches. M. Voulot hopes to be able to disengage from the stalagmitic covering at least one entire skeleton. There is no doubt that we have here important remains of the polished stone period, but it is confidently expected that further research will bring to light relics of a much older period; indeed the writer in the *Revue Scientifique*, of April 1, from which the above details are taken, hopes that remains will be found not only belonging to the Tertiary, but even to the Cretaceous period. The cavern is situated in a bed of one of the lower strata of the Jurassic period (lower oolite), "on the *exact limit* of the shore of the ancient Jurassic sea."

THE following arrangements of the Royal Institution lectures after Easter have been announced:—Prof. P. M. Duncan, F.R.S.: Four lectures on the Comparative Geology and former Physical Geographies of India, Australia, and South Africa; on Tuesdays, April 25 to May 16. Prof. Tyndall, D.C.L., LL.D., F.R.S.: Seven lectures on Voltaic Electricity; on Thursdays, April 27 to June 8. Prof. W. K. Clifford, F.R.S.: Two lectures on the Present Relations of Science and Philosophy; on Saturdays, April 29 and May 6. Prof. W. G. Adams, F.R.S.: Three lectures on some of Wheatstone's Discoveries and Inventions; on Tuesdays, May 23 to June 6. Frederick J. Furnivall: Two lectures on Chaucer; on Saturdays, May 13 and 20. J. A. Symonds: Three lectures on the Medici in relation to the Renaissance; on Saturdays, May 27 to June 10. The Friday evening meetings will be resumed on April 28, at 8 P.M., when Prof. Gladstone will give a discourse on Methods of Chemical Decomposition illustrated by Water. Discourses will probably be given by G. J. Romanes, W. Froude, C. T. Newton, J. F. Moulton, Sir John Lubbock, and Prof. Tyndall.

IN the Mauritius *Overland Commercial Gazette* of March 3, Mr. Meldrum refers to a small but violent cyclone which swept over the island on Feb. 19. Although its approach was announced by the Observatory on the previous day, it was only on the evening of the 18th that it was known with certainty that a gale was imminent. The wind was at its strongest between 2 and 7 A.M. on the 19th, and during that interval it had a velocity of 66·5 to 77·5 miles per hour. The lowest barometric pressure was 29·102 at 4 A.M. on the 19th, and during the night the mercury oscillated considerably. Between 3 and 4.30 A.M. several flashes of lightning were observed. The rainfall at the Observatory was only 2·94 inches. The chief interest of this cyclone is an unusual rate of progression, and the suddenness with which it came on. Its centre passed N. and N.W. of the island at a distance of forty to fifty miles. On the 23rd and 24th it was evident that another cyclone was approaching; fortunately, however, after approaching from the N.E. to about 160 miles of the colony, the storm recurved to the southward, otherwise the colony would have suffered severely. Mr. Meldrum mentions, as an interesting coincidence, that from the 10th to about the 22nd a large sun-spot was visible.

AT the concluding Gilchrist Lecture to the Students of the St. Thomas Charterhouse School of Science, Mr. W. E. Forster, M.P., occupied the chair, and spoke of the importance of teaching science in elementary schools, and of the ungrounded apprehension that thereby rudimentary education would be neglected. He believed it was the duty of the country to give children in elementary schools as much learning in science as they could obtain while they remained there, and should not be afraid to teach them science because their station in life was humble. He believed that if science were substantially and practically taught it would do nothing but good. He was well aware that some of those who had taken part in the education movement thought that if science were taught in elementary schools there would be increased danger of the neglect of good elementary teaching; but he did not think there was any ground for such apprehensions; on the contrary, he thought it would be found that, generally speaking, where science was taught best there was the best teaching of such elements as reading, writing, and arithmetic.

WE regret to hear of the death, at the age of sixty years, of Dr. Letheby, the well-known analyst, for many years Medical Officer of Health for the City of London, and Lecturer on Chemistry at the London Hospital. Dr. Letheby was a Fellow of the Linnean and Chemical Societies.

THE death is announced of Signor Severino Grattoni, the Italian engineer, who, amid great obstacles, carried out the execution of the Mont Cenis Tunnel.

THE Iron and Steel Institute concluded its London Meeting last Friday; the papers read were all of a purely technical nature. There are now about 900 members of the Institute, the next meeting of which will be held in Leeds in September.

The Institution of Naval Architects commences this year's session to-day, and will continue its meeting to-morrow and Saturday in the hall of the Society of Arts. Lord Hampton, G.C.B., D.C.L., president, will occupy the chair. Among the many papers to be read are the following:—On the unequal onward motion in the upper and lower currents in the wake of a ship, and the effects of this unequal motion on the action of the screw propeller, by Prof. Osborne Reynolds.—On the theory of pitching, by W. Froude, F.R.S., Vice-president.—On the telegraph-ship *Faraday*, by C. W. Merrifield, F.R.S., Associate Member of Council.—On the propulsion of bodies, by R. Griffiths.—On a new form of hydraulic propeller, by M. E. François.

At the conclusion of Prof. Huxley's Course of Lectures at Jermyn Street, which we are reporting, Mr. F. Wilson proposed a vote of thanks to the lecturer, and alluded to the state of Prof. Huxley's health. The vote was enthusiastically responded to, and Prof. Huxley, in reply, remarked that the gentleman who had kindly proposed the vote of thanks was under a mistake about his health, he was never better in his life; but, as it had been truly said, "If you had been ill it took at least four years to persuade your friends that you were well again."

The *Pandora*, Capt. Allen Young's yacht, is now being prepared at Southampton for another voyage to the Arctic regions in search of despatches from the expedition under the command of Capt. Nares. The yacht will be ready for sea in the course of a few weeks.

We are requested to state that Mr. E. B. Tylor gives his lecture on "Ordeals and Oaths" to morrow evening at the Royal Institution; there seems to have been some misunderstanding as to the date.

We believe there are a good many people who would wish to visit the *Challenger* on her return to England, while all her equipments are *in situ*, before she is gutted. We are sure that if the authorities are made aware of the existence of such a desire on the part of the public, they will make arrangements to gratify it.

On Easter Monday and following days the Geologists' Association will make an excursion to Nottingham and Belvoir Castle.

It is stated as probable that the site of the proposed International Exhibition at Paris in 1878 will be the Bois de Boulogne and Passy.

M. Balard, the well-known natural philosopher, who has taken part in most of the International Exhibitions that have been held, has died at Paris at the age of seventy-four. M. Balard was a member of the Academy of Sciences for more than thirty years. He was Professor of Chemistry at the Sorbonne. He leaves no written book, but his teaching was much admired.

On March 25 an earthquake was felt at Algiers and vicinity at 6h. 34m. in the morning. The duration was three seconds. A second movement, less intense, was felt at 7h. 2m. in the afternoon. In the evening a strong storm set in from the S.W., and a deluge of water followed.

We have received a copy of the rules recently adopted for the Cumberland Association for the Advancement of Literature and Science. The Association consists mainly of a number of local societies in Cumberland, and will hold an annual meeting, at which reports will be read from the affiliated societies, and the objects of the Association furthered by lectures, papers, addresses, discussions, &c. The association intends to publish at its own expense such portions of its own or of any of the associated societies' communications as may be deemed advisable. The objects of the association are laudable, and we wish it success. Its first annual meeting will be held at Whitehaven in May.

We would recommend to the notice of teachers, the Rev. George Henslow's paper on "The Practical Teaching of Natural Science in Schools," which is published in *The Educational Times* of March 1, and a paper in the April number by the Rev. P. Magniss, on "The Teaching of Natural Philosophy in Schools."

At the College examination at Downing College, Cambridge, in June, a Foundation Scholarship, of the value of 80*l.* per annum, will be awarded for proficiency in Natural Science. Particulars may be obtained from the tutors of the College.

Several important German publications have been forwarded to us; we regret that we are unable to do little more than give their titles. They may all be obtained through Messrs. Williams and Norgate, of London and Edinburgh. Dr. Hermann Hager has published a fifth edition of his useful little work, "Das Mikroskop und seine Anwendung" (Berlin: Sprengen). It is intended as a guide to medical men, pharmacists, students, &c., and is largely illustrated.—"Werden und Vergehen" (Berlin: Bornträger) is the title of a work by Carus Sterne, of Berlin, in which an attempt is made to trace the development of the universe from the nebulous "world-cloud" to man. Its tone may be inferred from the fact that it is admiringly dedicated to Prof. Haeckel.—Prof. J. C. G. Lucae has completed his work on the Anatomy of the Seal and Otter, "Die Robbe und die Otter" (Frankfort: Winter), *Phoca vitulina* and *Lutra vulgaris*, a monument of minute research. The first part of this work we noticed in vol. viii., p. 222; the complete work contains thirty-two fine plates.—Dr. M. J. Schleiden has published a curious work on Salt—"Das Salz" (Leipzig: Engelmann), its purpose being to trace the history, the symbolism, and describe the various uses of salt to man. Its main object is to show what an important effect salt has had on human culture.—"Grundriss der anorganischen Chemie" (Leipzig: Voss) is the title of a handbook by Dr. Rudolf Arendt, intended for use in German Middle, Higher, and Training Schools.—Under the title of "Physiologisches Methodik" (Braunschweig: Vieweg) Dr. Richard Gscheidlen, of Breslau University, has published what seems an admirable handbook of practical physiology. It is profusely illustrated with beautifully-executed woodcuts.—Under the title of "Theoretische Kinematik, Grundzüge einer Theorie des Maschinenwesens" (Braunschweig: Vieweg und Sohn), Prof. Reuleaux has published a work on Mechanics which will, no doubt, take a first place among treatises on this subject. Messrs. Macmillan and Co. will shortly publish a translation of Prof. Reuleaux's work.

Messrs. Williams and Norgate have sent us "Nouveaux Éléments de Physiologie Humaine" (Paris: Baillière), by Prof. H. Beaunis, a work which, we believe, will take a high rank as a text-book.—A French translation of the Guide to Analysis of Water, by Dr. Reichardt, of Jena, has been made by Prof. G. E. Strohl, of Nancy; it is published by Reinwald, of Paris, and sold here by Williams and Norgate.

Under the editorship of Mr. R. Brough Smyth there has been published a Descriptive Catalogue of Rocks, Minerals, and Fossils, illustrative of the Geology, Mineralogy, and Mining Resources of Victoria, Australia, intended for exhibition at the Philadelphia International Exhibition. The list contains altogether 880 specimens.

Messrs. Parker and Co. have published Prof. Prestwich's lecture "On the Geological Conditions affecting Water Supply to houses and towns, with special reference to the modes of supplying Oxford."

THE Prince of Wales is bringing home with him a large collection of living animals, including, among the most important, two Musk Deer, three Thars, a Manis, three adult Ostriches, four Elephants, five Tigers, three Leopards, sixteen Impeyan Pheasants, more than twenty Tragopans and Cheer Pheasants, several other Deer and Antelopes, together with Fruit Pigeons, Peafowl, &c. These His Royal Highness intends to have exhibited as one collection, and as such they will be deposited in the Gardens of the Zoological Society, a suitable house being in course of erection, and now nearly completed, for their reception.

THE additions to the Zoological Society's Gardens during the past week include a Lesser White-nosed Monkey (*Cercopithecus petaurista*) from West Africa, presented by Mr. F. Ward; a Common Marmoset (*Hapale jacchus*) from South-east Brazil, presented by Mrs. Cleaver; a Wild Sheep (*Ovis burrhel*), an Impeyan Pheasant (*Lophophorus impeyanus*) from the Himalayas, deposited; two Wheatears (*Saxicola œnanthe*), European, purchased; two Cuming's Octodons (*Octodon cumingi*) born in the Gardens.

SOCIETIES AND ACADEMIES

LONDON

Royal Society, March 23.—"Description of a Mammalian Ovum in an early condition of Development," by E. A. Schäfer, Assist. Prof. of Physiology in Univ. College.

The author describes the ovum of the cat from five, in the stage where they were rendered evident as scarcely perceptible swellings in the cornua uteri. In their long axes they were $\frac{1}{7}$ inch long; in their short, $\frac{1}{15}$ inch. No mesoblast was anywhere present between the hypo- and epiblastic layers, which latter were clearly separable from one another and nearly in contact only in a small part, where only the cells of each were in more than single layers. At this spot also, the cellular elements of each layer being perfectly recognisable, an exquisitely fine pellicle, which in section appears as a mere line, passes over and forms a definite boundary to the outer surface of the hypoblast at the thickened area. This is named the *membrana limitans hypoblastica*, and is found to be perfectly homogeneous and continuous, becoming stained slightly with carmine, and is probably a cuticular formation produced by the underlying cells. This structure seems to have been as yet unnoticed; the mesoblast cells without doubt first appear outside it, which is in favour of the epiblastic origin of that layer.

"On the nature of the force producing the motion of a body exposed to rays of heat and light," by Arthur Schuster, Ph.D., Demonstrator in the Physical Laboratory of Owens College. Communicated by B. Stewart, F.R.S., Professor of Natural Philosophy in Owens College, Manchester.

Mr. Crookes has lately drawn attention to the mechanical action of a source of light on delicately suspended bodies *in vacuo*; I have made a few experiments with the view of finding out the seat of the reaction which evidently must tend to move either the enclosure or the source of light. I have found that the action and reaction is entirely between the light bodies suspended *in vacuo* and the exhausted vessel.

Mr. Crookes' "Light-Mill" was suspended by means of two cocoon fibres, forming a bifilar suspension from the top of a vessel which could be exhausted. A slight movement of the enclosure could be easily detected by means of a concave mirror attached to it. A beam of the oxyhydrogen lamp was concentrated on the light-mill, which then revolved about 200 times a minute.

The light was cut off at the beginning of the experiment by means of a screen, and the position of rest of the glass vessel was read off by means of the dot of light on the scale. The screen was then suddenly removed, and in every case a large deflection of the glass vessel was observed. The vessel was deflected in the opposite direction to that in which the mill turned. When the velocity of the mill had become constant, the vessel returned to its original position of rest, but on suddenly cutting off the light the vessel was again deflected, but in the opposite direction as on starting the experiment. The vessel therefore now turned in the same direction in which the mill turned.

These experiments are easily explained on the assumption that the force acting on the vessel enclosing the light-mill is exactly equal and opposite to that acting on the mill itself. While the velocity of the mill in one direction is increasing, a force acts in the opposite direction on the vessel. When the velocity has become constant, the force which tends to drive the mill round is exactly counterbalanced by the resistance which opposes the motion of the mill. The two forces acting on the vessel will therefore counterbalance, and the vessel will return to its original position of rest. When the light is cut off, the resistance will stop the motion of the mill. The reaction of the resistance will act on the enclosure, and the enclosure will turn in the same direction as the mill.

By means of the reaction on the enclosure I have been able to calculate the strength of the force; and I have found that the pressure on a surface on which the light of equal intensity to that used in my experiments falls is equal to that produced by the weight of a film of water equal in thickness to the length of a wave of violet light.

March 30.—"On the Placentation of the Lemurs," by Wm. Turner, M.B. (Lond.), Professor of Anatomy, University of Edinburgh. Communicated by Prof. Huxley, Sec. R.S.

In the introduction to this memoir a description was given of the observations made by M. Alphonse Milne-Edwards on the gravid uteri of several genera of lemurs. The author then proceeded to describe the gravid uteri of six lemurs which he had received from Dr. Andrew Davidson, of Antananarivo, Madagascar, viz., *Propithecus diadema*, *Lemur rufipes*, and *Indris brevicaudatus*. He then summarised the conclusions he had arrived at in the course of his dissections, and showed that the placenta in these animals was diffused, and presumably therefore non-deciduate. The paper concluded with a discussion of the bearing of these observations on the classification of the lemurs, and on the theory of the descent of the deciduate mammals from a primæval root-form of Prosiniæ.

"The Residual Charge of the Leyden Jar," by J. Hopkinson, M.A., D.Sc. Communicated by Prof. Sir William Thomson, F.R.S.

Linnean Society, March 16.—Prof. Allman, president, in the chair.—Messrs. Edward R. Alston and David Blair were elected Fellows of the Society.—Dr. J. Anderson communicated a note "On the plastron of the Gangetic Mud-turtle, *Emyda dura*," detailing an instance where eleven instead of the usual nine bones were present. This occurred in an embryo from the egg, and it further appears that ossification and coalescence of the extra pair of bones is coincident with birth.—Mr. A. W. Bennett read a paper "On the rate of growth of the flower-stalk of the hyacinth," in which he showed that the greatest energy of growth is in the lowermost part of the stalk. This agrees with the recorded observations respecting the relative growth of different nodes of a stem, where the greatest energy is always at a considerable distance from the apex. But it offers a contrast to the phenomena exhibited in the submerged flower-stalk of *Vallisneria*, where the greatest energy of growth is in the terminal portion beneath the flower-bud.—Mr. Francis Darwin laid before the Society the results of his observations "On the hygroscopic mechanism by which certain seeds are enabled to bury themselves in the ground." These related chiefly to the Feather-grass, *Stipa pennata*, but similar phenomena obtain in other grasses, in *Anemone montana* and certain of the Geraniaceæ (as Hanstein has recorded, 1868). The essential structures are—a sharp point with reflexed hairs, and a strong woody awn, so bent as to possess a lower vertically helical and an upper horizontal part. With moisture the spiral portion of the awn untwists, causing the horizontal part to revolve, while the flexure between them disappears and thus straightens the awn. A reversal of this process succeeds on the awn becoming dry. In the case of *Stipa* the long, feathery, horizontal part of the awn is easily entangled in low vegetation, and the seed retained vertically, with point on the ground. With wetting the awn untwists, but the horizontal part prevented from revolving, the rotation is transferred to the seed, which latter has superadded pressure of its point, by a conversion of the awn to straighten itself. Again, as the awn dries the seed is not pulled out of the ground, but curiously enough is thrust deeper down; the reflexed hairs being subservient. By such combinations and alternate actions complete burial of the seed ensues. The special advantage of seeds being thus imbedded is obscure; in *Stipa* being unconnected with germination, though possibly a